University of Windsor
Department of Electrical and Computer Engineering
ELEC 8590 Physical Design Automation for VLSI and FPGAs
Winter 2021

Routing Exercise, Due Tuesday March 23, 2021

1.

Consider the following instance of channel routing problem:

TOP = [2, 3, 3, 6, 0, 7, 1, 6, 5, 4]

BOT = [0, 1, 3, 2, 7, 3, 7, 4, 1, 5]

where 0 denotes a vacant terminal. Assume two layer channel routing in all cases.

(a)

Calculate the local density at each column. From the local density derive a lower bound on channel width for successful routing.

(b)

Draw the vertical constraint graph (VCG). From the VCG derive a lower bound on channel width for successful routing.

(c)

Draw the vertical constraint graph (HCG). From the HCG derive a lower bound on channel width for successful routing.

(d)

Apply the greedy algorithm to the above instance of channel routing problem. Show the final routing solution obtained.